

wherein:

R¹ and R² are independently hydrogen or a hydroxy-protecting group, except that R¹ and R² may not both be hydrogen simultaneously; and

Y is selected from the group consisting of:

a) oxygen,

b) an oxime having the formula N-O-R³, wherein R³ is selected from the group consisting of:

hydrogen,

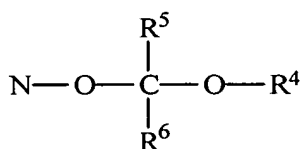
a loweralkenyl group,

an aryl(loweralkyl) group, or

a substituted aryl(loweralkyl) group;

and

c) an oxime having the formula:



wherein

R⁴ is

a loweralkyl group,

a cycloalkyl group,

a phenyl group,

an aryl(loweralkyl) group,

or R⁴ and R⁵ or R⁴ and R⁶ and the atoms to which they are attached are taken together form a 5- to 7-membered ring containing one oxygen atom;

R⁵ is

a loweralkyl group,

a loweralkoxymethyl group,

or R⁵ and R⁴ and the atoms to which they are attached are taken together form a 5- to 7-membered ring containing one oxygen atom,

or R⁵ and R⁶ and the atoms to which they are attached are taken together form a 5- to 7-membered cycloalkyl group;

and

R⁶ is

a hydrogen atom,

a loweralkyl group,

a phenyl group,

an aryl(loweralkyl) group;

or R⁶ and R⁴ and the atoms to which they are attached are taken together form a 5- to 7-membered ring containing one oxygen atom;

or R⁶ and R⁵ and the atoms to which they are attached are taken together form a 5- to 7-membered cycloalkyl group;

with the requirement that only one pair of substituents (R^4 and R^5), (R^4 and R^6) or (R^5 and R^6) may be taken together with the atoms to which they are attached to form a ring as defined above;

with a methylating agent in the presence of both a strong alkali metal base and a weak organic amine base in polar aprotic solvent or a mixture of polar aprotic solvents maintained at a reaction temperature for a period of time sufficient to complete the methylation, by adding the weak organic base prior to the addition of the methylating agent and the strong alkali metal base; and

(b) deprotecting at the 2', 4" and/or 9 positions.

9. The process according to claim 8, wherein the weak organic amine base is selected from the group consisting of trimethylamine, triethylamine, tripropylamine, pyridine, 2-methoxypyridine, 1-methyl-pyrrolidine, 1-methylpiperidine, and 1-ethylpiperidine.

10. The process according to claim 8, wherein the methylating agent is selected from the group consisting of methyl bromide, methyl iodide, dimethyl sulfate and methyl-p-toluenesulfonate.

11. The process according to claim 8, wherein the solvent is a mixture of solvents selected from the group consisting of N,N-dimethyl-formamide, dimethyl sulfoxide, N-methyl-2-pyrrolidone, hexamethylphosphoric triamide, tetrahydrofuran, 1,2-dimethoxyethane, acetonitrile and ethyl acetate.

12. The process according to claim 8, wherein R^1 and R^2 in the compound are independently hydrogen or a hydroxy-protecting group, which is benzyloxycarbonyl, acetyl, or a substituted silyl group of formula $SiR^7R^8R^9$, wherein R^7 , R^8 and R^9 are the same or different and each is a hydrogen atom, a loweralkyl group, a phenyl-substituted alkyl group in which the alkyl moiety has 1 to 3 carbon atoms, a phenyl group, a cycloalkyl group having 5 to 7 carbon atoms, or a loweralkenyl group having 2 to 5 carbon atoms; with the provision that at least one of R^7 , R^8 and R^9 is not a hydrogen atom.